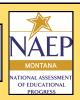
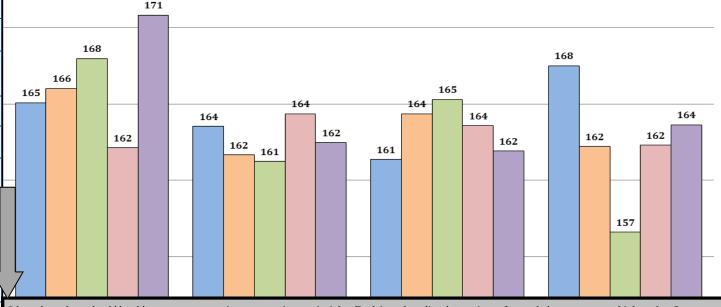
300				
215	Advanced			
210	Draw a conclusion about soil permea-			
175	bility using data—Partial (CR)			
173	Describe the competition between two			
174	species—Complete (CR)			
1/4	Identify a function of a human organ			
171	system (MC)			
170	Proficient			
1.0	1 Tomerone			
167	Describe the evidence for chemical			
	Describe the energy transfer between			
165	two systems—Complete (CR)			
103	two systems—complete (CK)			
162	Read a motion graph (MC)			
	Draw a conclusion based on fossil			
157	evidence (MC)			
	Select and explain the useful properties			
	of a material used in an industrial			
156	process—Partial (CR)			
	Predict a geological consequence of			
153	tectonic plate movement (MC)			
	Identify the mechanism of a weather			
151	pattern (MC)			
	Recognize a factor that affects the			
148	success of a species (MC)			
141	Basic			
	Identify the sequence of formation of			
136	the Earth's features (MC)			
	Identify an example of kinetic energy			
134	(MC)			
101	7			
131	Predict the effect of an environmental change on an organism (MC)			
131				
120	Explain an experimental setup to study			
128	populations of organisms (MC)			
105	Recognize how plants use sunlight			
127	(MC)			
400	Explain the effects of human land use			
122	on wildlife—Partial (CR)			
0	■ Overall Science - Gr 08 - 2011 - MT - Effective Labs			
U	□ Overall Science - Gr 08 - 2011 - MT - How Students Learn Science			
	Overall Science - Gr 08 - 2011 - MT - Methods Assessment			
	Overall Science - Gr 08 - 2011 - MT - Methods Teaching			
	Overall Science - Gr 08 - 2011 - MT - Science Inquiry			



8th Grade NAEP Science Findings in Montana



8th grade students should be able to demonstrate relationships among closely related science principles. Identify evidence of chemical changes; explain and predict motions of objects using position time graphs; explain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and Moon to explain visible motions in the sky; and predict surface and ground water movements in different regions of the world. Explain and predict observations of phenomena at multiple scales, from microscopic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use evidence from investigations in arguments that accept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local community responses to design problems.



8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.

Not at all Small extent Moderate extent Large extent

Response

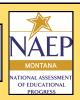
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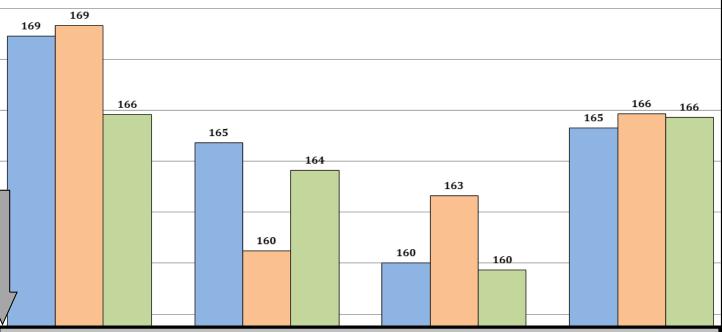
300					
215	Advanced				
	Draw a conclusion about soil permea-				
175	bility using data—Partial (CR)				
	Describe the competition between two				
174	species—Complete (CR)				
171	Identify a function of a human organ				
171 170	system (MC)				
1/0	Proficient Describe the evidence for chemical				
167	change—Partial (CR)				
	, ,				
165	Describe the energy transfer between two systems—Complete (CR)				
103	two systems—complete (CR)				
162	Read a motion graph (MC)				
	Draw a conclusion based on fossil				
157	evidence (MC)				
	Select and explain the useful properties				
150	of a material used in an industrial				
156	process—Partial (CR)				
153	Predict a geological consequence of				
	tectonic plate movement (MC)				
151	Identify the mechanism of a weather				
131	pattern (MC) Recognize a factor that affects the				
148	success of a species (MC)				
141	Basic				
	Identify the sequence of formation of				
136	the Earth's features (MC)				
	Identify an example of kinetic energy				
134	(MC)				
	Predict the effect of an environmental				
131	change on an organism (MC)				
	Explain an experimental setup to study				
128	populations of organisms (MC)				
	Recognize how plants use sunlight				
127	(MC)				
	Explain the effects of human land use				
122	on wildlife—Partial (CR)				
0	Overall Science - Gr 08 - 2011 - MT - Content Standards				
U	Content Standards				
	Overall Science - Gr 08 - 2011 - MT -				
	Curricular Materials				
	□ Overall Science - Gr 08 - 2011 - MT -				
	State & District Assessment				



8th Grade NAEP Science Findings in Montana



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8th grade students should be able to state or recognize correct science principles. Explain and predict observations of natural phenomena at multiple scales, from microscopic to global. Describe properties and common physical and chemical changes in materials; describe changes in potential and kinetic energy of moving objects; describe levels of organization of living systems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe a model of the solar system; and describe the processes of the water cycle. Design observational and experimental investigations employing appropriate tools for measuring variables. Propose and critique the scientific validity of alternative individual and local community responses to design problems.

Not at all Small extent Moderate extent Large extent
Response

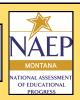
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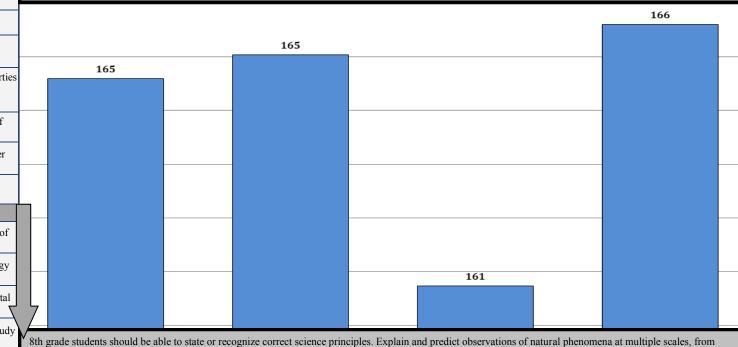
300		< <u></u> ✓
215	Advanced	NACD
175	Draw a conclusion about soil permeability using data—Partial (CR)	NALP 8th Grade
174	Describe the competition between two species—Complete (CR)	NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS
171	Identify a function of a human organ system (MC)	8th grade students should be able to demonstrate motions of objects using position time graphs; exp
170	Proficient	and Moon to explain visible motions in the sky; a
167	Describe the evidence for chemical	of phenomena at multiple scales, from microscopic evidence from investigations in arguments that ac
165	Describe the energy transfer between two systems—Complete (CR)	community responses to design problems.
162	Read a motion graph (MC)	
157	Draw a conclusion based on fossil evidence (MC)	
	Select and explain the useful properties of a material used in an industrial	165
156	process—Partial (CR)	
153	Predict a geological consequence of tectonic plate movement (MC)	
151	Identify the mechanism of a weather pattern (MC)	
148	Recognize a factor that affects the success of a species (MC)	
141	Basic	
136	Identify the sequence of formation of the Earth's features (MC)	
134	Identify an example of kinetic energy (MC)	
131	Predict the effect of an environmental change on an organism (MC)	7
128	Explain an experimental setup to study populations of organisms (MC)	8th grade students should be able to state or reco
127	Recognize how plants use sunlight (MC)	microscopic to global. Describe properties and co jects; describe levels of organization of living syst
122	Explain the effects of human land use on wildlife—Partial (CR)	a model of the solar system; and describe the proc measuring variables. Propose and critique the scie
0	Overall Science - Gr 08 - 2011 -	0.4
	MT - Degree Not included	0-4 years
	Overall Science - Gr 08 - 2011 - MT - Years Taught	NOTE: The NAEP Science scale ranges from 0 to statistically significant. SOURCE: U.S. Department Educational Progress (NAEP), 2011 Science Asse
		Retrieved from http://nces.ed.gov/nationsreportcar



NAEP Science Findings in Montana



e relationships among closely related science principles. Identify evidence of chemical changes; explain and predict eplain metabolism, growth, and reproduction in cells, organisms, and ecosystems; use observations of the Sun, Earth, and predict surface and ground water movements in different regions of the world. Explain and predict observations pic to macroscopic and local to global, and to suggest examples of observations that illustrate a science principle. Use ccept, revise, or reject scientific models. Use scientific criteria to propose and critique alternative individual and local



ommon physical and chemical changes in materials; describe changes in potential and kinetic energy of moving obstems—cells, multicellular organisms, and ecosystems; identify related organisms based on hereditary traits; describe ocesses of the water cycle. Design observational and experimental investigations employing appropriate tools for ientific validity of alternative individual and local community responses to design problems.



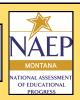
to 300. Detail may not sum to totals because of rounding. Some apparent differences between estimates may not be nent of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of essment.

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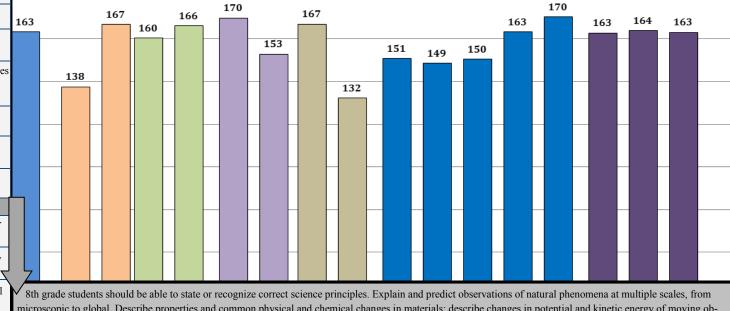
300	
215	Advanced
	Draw a conclusion about soil permea-
175	bility using data—Partial (CR)
	Describe the competition between two
174	species—Complete (CR)
171	Identify a function of a human organ
171	system (MC)
170	Proficient
1.67	Describe the evidence for chemical
167	change—Partial (CR)
	Describe the energy transfer between
165	two systems—Complete (CR)
162	2 1 2/6
102	Read a motion graph (MC)
155	Draw a conclusion based on fossil
157	evidence (MC)
	Select and explain the useful properties
1	of a material used in an industrial
156	process—Partial (CR)
153	Predict a geological consequence of
133	tectonic plate movement (MC)
	Identify the mechanism of a weather
151	pattern (MC)
	Recognize a factor that affects the
148	success of a species (MC)
141	Basic
	Identify the sequence of formation of
136	the Earth's features (MC)
	Identify an example of kinetic energy
134	(MC)
	Predict the effect of an environmental
131	change on an organism (MC)
	Explain an experimental setup to study
128	populations of organisms (MC)
1_0	
127	Recognize how plants use sunlight
14/	(MC)
122	Explain the effects of human land use
122	on wildlife—Partial (CR)
0	



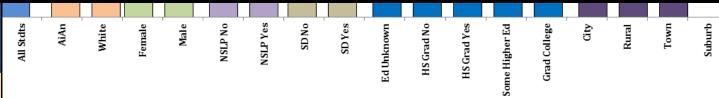
8th Grade NAEP Science Findings in Montana



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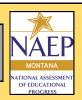
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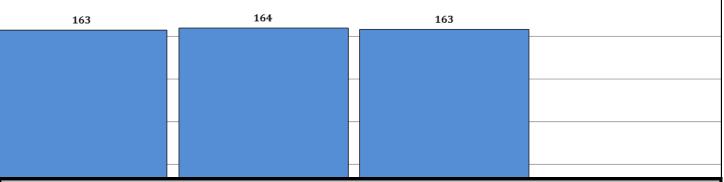
300				
215	Advanced			
	Draw a conclusion about soil permea-			
175	bility using data—Partial (CR)			
	Describe the competition between two			
174	species—Complete (CR)			
171	Identify a function of a human organ			
170	system (MC) Proficient			
170	Troncient			
167	Describe the evidence for chemical			
	Describe the energy transfer between			
165	two systems—Complete (CR)			
4.40				
162	Read a motion graph (MC)			
157	Draw a conclusion based on fossil			
157	evidence (MC)			
	Select and explain the useful properties of a material used in an industrial			
156	process—Partial (CR)			
	Predict a geological consequence of			
153	tectonic plate movement (MC)			
	Identify the mechanism of a weather			
151	pattern (MC)			
	Recognize a factor that affects the			
148	success of a species (MC)			
141	Basic			
	Identify the sequence of formation of			
136	the Earth's features (MC)			
	Identify an example of kinetic energy			
134	(MC)			
424	Predict the effect of an environmental			
131	change on an organism (MC)			
400	Explain an experimental setup to study			
128	populations of organisms (MC)			
127	Recognize how plants use sunlight			
127	(MC)			
122	Explain the effects of human land use			
122	on wildlife—Partial (CR)			
0	■ 2011 - Science - MT - Gr 08 - Schl			
	Loc - Sum of Avg. scale score			
	and a series of the series of			
	2011 - Science - MT - Gr 08 - Schl			
	Loc - Sum of PctTested			



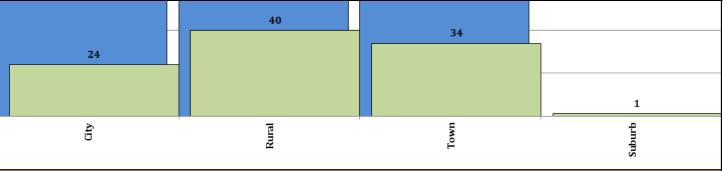
8th Grade NAEP Science Findings in Montana



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http://nces.ed.gov/nationsreportcard/itemmaps/index.asp

2011 Grade 8		NAEP Science Scale		
Content Classifications:				
Earth & Space Sciences	Physical Science	▲ Life Science		
		□ 190		
300			n the volcanic activity of a region (MC)	
•		■ 184 Recognize an effect of electr	ical forces (MC)	
290		• 184 Explain the formation of a roc	k based on its features—Partial (CR)	
	torn due to collinion of air manner. Complete (CD)	▲ 183 Recognize that plants produc	e their own food (MC)	
·	ern due to collision of air masses—Complete (CR)	■ 182 Select and explain the useful	properties of a material used in an industrial process—Ess	ential (CR)
280		▲ 180 Form a conclusion based on o	data about the behavior of an organism—Partial (CR)	
270		□ 180		
269 Describe the evidence for chemica	al change—Complete (CR)	 175 <u>Draw a conclusion about soil</u> 	permeability using data—Partial (CR)	
266 Identify chemically similar elements	s in the Periodic Table (MC)	▲ 174 Describe the competition betw		
	d draw graphs from data that compare insect behaviors			
260		171 Investigate the magnetic prop	erties of some common objects (MC)	
 256 Explain the formation of a rock bas 	sed on its features—Complete (CR)	170 Proficient		
250		□ 170	and all the same Partial (OR)	
▲ 247 Form a conclusion based on data a	about the behavior of an organism—Complete (CR)	= 167 Describe the evidence for che		
240		■ 162 Read a motion graph (MC)	between two systems—Complete (CR)	
▲ 231 Select and explain graph types and	d draw graphs from data that compare insect behaviors	Essential (CR) = 160		
230		• 157 Draw a conclusion based on	fossil evidence (MC)	
224 Explain a change in energy due to	friction (MC)		properties of a material used in an industrial process—Part	ial (CR)
221 <u>Draw a conclusion about soil perm</u>			ence of tectonic plate movement (MC)	
220		• 151 Identify the mechanism of a w	reather pattern (MC)	
215 Advanced		□ 150		
214 Explain the effects of human land to	use on wildlife_Complete (CD)	▲ 148 Recognize a factor that affect	ts the success of a species (MC)	
	use on whalife—complete (CK)	141 Basic		
213 Predict a lunar phenomenon (MC)	to a due to collision of signature. Postial (OP)	□ 140		
	ern due to collision of air masses—Partial (CR)	 136 Identify the sequence of form 	ation of the Earth's features (MC)	
210		■ 134 Identify an example of kinetic		
208 Explain the formation of a rock bas	• •		enmental change on an organism (MC)	
	erties of a material used in an industrial process—Comp			
 201 Relate characteristics of air masse 	es to global regions (MC)		to study populations of organisms (MC)	
▲ 200 Select and explain graph types and	d draw graphs from data that compare insect behaviors			
▲ 200 Identify the main source of energy	for certain organisms (MC)	• 122 Explain the effects of human 120	and use on Wilding—Partial (CR)	
200		120		
■ 198 Identify the atomic components of	the molecule (MC)	0		
■ 195 Determine a controlled variable in a	a chemistry investigation (MC)			
• 190 Identify a source of energy for Ear	rth's water cycle (MC)	Content Classifications:		
∃ 190		Earth & Space Sciences	■ Physical Science	▲ Life Science
Blue highlight= hyperlink to NA	AED 1 14			